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January 21, 2016

Marlene H. Dortch, Secretary  
Federal Communications Commission  
445 12th Street, SW  
Washington, DC 20554

**Re: Notice of Oral Ex Parte Presentation  
RM-11745  
ET Docket No. 14-165, GN Docket No. 12-268 and GN Docket No. 12-354**

Dear Ms. Dortch:

On January 19, 2016, undersigned counsel to the Wireless Internet Service Providers Association ("WISPA") met separately with Edward Smith, Legal Assistant to Chairman Tom Wheeler; Johanna Thomas, Legal Assistant to Commissioner Jessica Rosenworcel; Brendan Carr, Legal Assistant to Commissioner Ajit Pai; and Commissioner Michael O'Rielly and his Legal Assistant Erin McGrath. The purpose of the meeting was to present WISPA's views and concerns about a Notice of Proposed Rulemaking ("NPRM") on circulation that would propose changes to rules permitting professional installation of TV white space devices.

I noted that TV white space devices were being registered in the TV white space database, and there were no known instances of non-registration of devices or interference to stations entitled to protection. I also mentioned that industry was working to correct errors and establish procedures that would make the database more reliable.

I explained that eliminating the professional installation option in Section 15.711(b) of the Commission's Rules would have unintended consequences that should be considered in the upcoming proceeding. First, professional installation is required for the database to recognize directional antennas because the orientation of the directional antenna must be entered into the database manually. In its petition for partial reconsideration<sup>1</sup> of the *Part 15 Report and Order*,<sup>2</sup> WISPA asked the Commission to allow the database to recognize directional antennas, which would enable more efficient use of white space spectrum while better protecting licensees from

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<sup>1</sup> See Petition for Partial Reconsideration of WISPA, ET Docket No. 14-165 and GN Docket No. 12-268 (filed Dec. 23, 2015) ("WISPA Petition").

<sup>2</sup> See *Amendment of Part 15 of the Commission's Rules for Unlicensed Operations in the Television Bands, Repurposed 600 MHz Band, 600 MHz Guard Bands and Duplex Gap, and Channel 37, et al.*, Report and Order, ET Docket No. 14-165 and GN Docket No. 12-268, FCC 15-99 (rel. Aug. 11, 2015) ("*Part 15 Report and Order*").

interference. The Commission's failure to authorize use of the well-known interference-reduction capabilities of directional antennas contravenes both good engineering and industry best practice.

Second, I stated that automatic GPS determination of antenna height is less accurate than manual determination of antenna height. While GPS may be accurate for latitude and longitude in most areas, GPS (especially consumer-grade GPS) is far less accurate in determining vertical height above ground. Vertical height errors from GPS can range from 30 feet to several hundred feet,<sup>3</sup> while vertical height entered by a human, professional installer will be accurate within one or two feet. This limitation inherent in GPS vertical positional accuracy reduces the accuracy of white space antenna coverage prediction and the licensed incumbent's protection zone, and thereby distorts the database-provided list of available white space channels. Further, GPS limitations also reduce spectral efficiency and deny broadband coverage to those who may have no other terrestrial broadband options.

Third, professional installation may be the only option in areas where geolocation does not work. In coal mines and subway tunnels, the device will not be able to see GPS satellites. Professional installation in these circumstances may be the only option.

In addition to unintended consequences, eliminating the professional installation option would set a precedent for other bands where professional installation is already required. I noted that the National Association of Broadcasters ("NAB") has sought reconsideration of Citizens Broadband Radio Service rules that require professional installation of Category B devices.<sup>4</sup> Although the TV white space database and the Spectrum Access System are very different, the Commission must appreciate that its decision in the upcoming proceeding could have ramifications in other proceedings where professional installation is permitted or required.

To address legitimate concerns about the accuracy and reliability of the TV white space database, I suggested that the Commission consider other, less drastic ways to mitigate human error. Commission rules already require registrants to maintain the accuracy and currency of registrations<sup>5</sup> and require database administrators to timely correct errors in the database,<sup>6</sup> but do not impose any obligations on professional installers. WISPA believes that professional installers must disclose their identity and contact information so that they can be contacted in the event they make an error, and face enforcement sanctions for repeated errors. I also pointed out that WISPA, Google and the Wireless Innovation Forum are developing a certification program

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<sup>3</sup> See, e.g., <http://gpsinformation.net/main/altitude.htm> (last visited Jan. 21, 2016); <https://support.garmin.com/support/searchSupport/case.faces?caseId=%7b66f1b0a0-4cd6-11dc-4733-000000000000%7d> (last visited Jan. 21, 2016).

<sup>4</sup> See Petition for Reconsideration of NAB, GN Docket No. 12-354 (filed July 23, 2015) at 1. See also Opposition of WISPA, GN Docket No. 12-354 (filed Oct. 19, 2015) at 8-11.

<sup>5</sup> See 47 C.F.R. § 15.713(f)(2).

<sup>6</sup> See 47 C.F.R. § 15.715(i).

for professional installers, who must obtain certification by meeting established requirements designed to ensure accurate installation of devices.

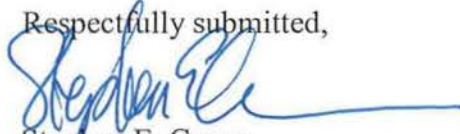
I stated that, if the Commission ultimately eliminates the professional installation option generally for the TV white space devices, it should allow professional installation in limited circumstances where geolocation will not work and where a directional antenna is the only means by which vacant TV channels can be made available for unlicensed use.

Finally, I noted that in a July 17, 2015 *ex parte* letter submitted by NAB and TV white space manufacturers, "NAB agrees that incorporating this geo-location capability in TV Band Devices will ensure the device's location information delivered to the TV Band Database Administrators is more accurate and reliable and therefore supports the proposed rule changes that permit such TV Band device to operate at higher power levels and increased height above average terrain (HAAT) provided that the same levels of protection are maintained to TV viewers."<sup>7</sup> In the *Part 15 Report and Order*, the Commission approved operation at higher power in less congested areas, but did not authorize operation from increased HAAT, as WISPA proposed. WISPA has asked for reconsideration of this decision in the WISPA Petition.

WISPA looks forward to reviewing the NPRM and providing comment on the important issues that will be raised therein.

Pursuant to Section 1.1206 of the Commission's Rules, this letter is being filed electronically via the Electronic Comment Filing System in the above-captioned proceedings.

Respectfully submitted,



Stephen E. Coran  
*Counsel to WISPA*

cc: Commissioner Michael O'Rielly  
Erin McGrath  
Edward Smith  
Johana Thomas  
Brendan Carr

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<sup>7</sup> Letter from NAB, *et al.*, to Marlene H. Dortch, FCC Secretary, ET Docket No. 14-165 and RM-11745 (filed July 17, 2015) at 2.